



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/689,699

10/22/2003

Hiroshi Kainuma

TOC-0007

4633

23353 7590 10/30/2008  
RADER FISHMAN & GRAUER PLLC  
LION BUILDING  
1233 20TH STREET N.W., SUITE 501  
WASHINGTON, DC 20036

EXAMINER

WEINSTEIN, LEONARD J

ART UNIT

PAPER NUMBER

3746

MAIL DATE

DELIVERY MODE

10/30/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/689,699	<b>Applicant(s)</b> KAINUMA ET AL.	
	<b>Examiner</b> LEONARD J. WEINSTEIN	<b>Art Unit</b> 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4 and 5 is/are pending in the application.
- 4a) Of the above claim(s) 3 and 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4 and 5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 2, 2008 has been entered.

2. The examiner acknowledges the amendment to claims 1 and 2.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1, 2, 4, and 5 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

5.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 3746

7. Claims 1, 2, 4, and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Claims 1 and 2 recite the limitation "contact end" in lines 19 and 21 in claim 1 and line 2 in claim 2. There is insufficient antecedent basis for this limitation in the claim. The examiner notes that the element corresponding to a "contact end portion" was initially introduced in claim 1 as "a connecting end portion." As best understood by the examiner the term "contacting" is better suit for limitations directed to the instant invention. For the purposes of clarity and the office action on the merits each recitation of "connecting end portion" and "contact end portion" will be considered as --- recess contacting end portion ----.

9. Claim 1 recites the limitation of "one end portion of the valve rod" in the amendment presented. This language is vague and ambiguous and strains an interpretation of the claim when considering the language used for other end of the valve rod. As best understood by the examiner the limitation of "one end portion" will be considered to be --- a valve contacting end portion --- so as to distinguish this end of the valve rod from the end in contact with the fitted recess.

10. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the structural arranged that allows a rod having an end portion "fitted to be able to float in the fitting recessed

Art Unit: 3746

portion... such that a the patch member can be titled with respect to the valve rod," which is also "sized to be received in the valve-end receiving chamber of the fitting recessed portion in a close fitting relationship." The two limitations are contradictory, since on one hand the valve rod is fitted to float and a patch member have a recessed fitting portion provided to receive end of the valve rod which enables a "floating" relationship. But on the other hand the same end portion of the valve rod is provided in "close fitting" relationship with the recess. It is unclear from the limitations what permits a recessed portion formed within a patch member could receive a rod in a close fitting relationship but still enable the patch member it is formed within to pivot about the valve rod. To the best understanding of the examiner the limitation of "valve rod is sized to be received in the valve-end receiving chamber of fitting recessed portion in a close fitting relationship" will be considered to be --- valve rod is sized to be received in the valve-end receiving chamber of fitting recessed portion --- in order to comport with the preceding limitations for the purposed of clarity and the office action on the merits that follows.

### ***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 3746

12. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. Claim1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kumagai et al. US 6,250,6000 in view of Umemura et al US 2002/0098091 as evidenced by Shimizu et. al JP 001153043 (hereto fore cited by reference to the figures and disclosure of Shimizu et al. US 6,350,106). Kumagai discloses the following limitations as claimed including: **[claim 1]** a control valve for a variable capacity compressor 50 comprising a bellows main body 67, retained as a pressure sensing element in a bellows case 66 with an airtight structure, and transfers expansion and contraction of the bellows main body in response to a variation in inlet pressure 72 of a variable capacity compressor to a valve element 61 through a valve rod, 65 and 77, supported to be movable in a valve lifting direction from a valve housing 54 integral with said bellows case to thereby change a valve opening degree, a patch member, 69 of 71, is provided to a movable-side end portion of the bellows main body and is formed with a fitting recessed portion 78, a valve rod 59 being fitted to be able to float in the fitting recessed portion, one end portion, bottom portion of element 59, of a valve rod 59 housed in the fitting recessed portion 78 of a patch member 69 in a tiltable manner, and a compression coil spring 70 disposed between the patch member and a lower patch

Art Unit: 3746

member 68 for supporting a fixed-side end portion of the bellows main body; wherein a valve housing, portion of element 51 surrounded by element 52, is formed with a valve rod retaining hole 56 formed therethrough and sized to slidably receive the valve rod (65, 77) in a close fitting relationship so that a valve contacting end portion (portion of element 65 in contact with element 61) contacts the valve element 61 while a recess contacting end portion 77 of the valve rod (65, 77) opposite the valve contacting end portion (top of element 65 in contact with element 61) of the valve rod (65, 77) contacts the fitting recessed portion 78, the recess contacting end portion 77 of the valve rod 12 is sized to be received in a section of the recessed fitting portion 78.

Kumagai does not teach fitting recessed portion that defines a valve-end receiving chamber extending in the valve lifting direction that receives recess contacting end portion of the valve rod (65, 77) in the arrangement disclosed. However after further consideration of Kumagai it is apparent that if several simple modifications were made, this limitation would be taught by the valve of figure 2 of Kumagai. The examiner notes that one of ordinary skill in the art could disassemble the base portion 53 from the valve body 51 and rotate 180<sup>0</sup> the bellows assembly defined by elements 66, 67, 68, 68a, 70, and 71 and reassemble the valve of figure 2 provided that screw member 73 is not threaded into the chamber housing a bellows 66. This modification would then teach the limitation of “a fitting recessed portion **[now formed by portion of element 68 that fit over element 73]** defining a valve-end receiving chamber **[space defined between the vertical wall element 68 is comprised of]** extending in the valve lifting

Art Unit: 3746

direction, a ~~connecting~~ recess contacting end portion [77] of the valve rod [12] being fitted to be able to float in the fitting recessed portion.”

It has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art. *In re Einstein*, 8 USPQ 167. It has also been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70. The examiner notes that the modification discussed would equate to reversal a single assembly of components of the valve taught by Kumagai. The reversal of bellows assembly is evidences by Shimizu. As shown in figure 1, and with reference to the components of the pressure sensing device 20b of the capacity control mechanism 20, the arrangement where a valve rod 34 is received within a recess, within a patch member, on the valve lifting side of a bellows chamber was a known arrangement at the time the invention was made. Since this was a known valve arrangement that would require a minimal modification using the same components of the valve, it would have been obvious to one having ordinary skill in the art at the time the invention was made to disassembly a valve as taught by Kumagai and rotate a bellows assembly 180<sup>0</sup>.

It may be argued that the modification proposed may require that a valve rod increase in length. This is again would be a minor modification and amount to a change in size which is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

Kumagai as modified above would still teach the claimed invention except for the following limitation that is taught for a control valve by Umemura wherein an end portion



Art Unit: 3746

of a valve rod 41 is roundly or hemispherically shaped, as shown in figure for with the distal end of element 42, and wherein the fitting recessed portion is formed such that a patch member 68 can be tilted with respect to the valve rod 42 (Umemura - ¶0055).

Modifying a valve rod such as Kumagai so that it has a rounded surface at a distal end of a valve rod in contact with a patch member would substitute for a ball 77 of Kumagai while ensuring a force corresponding to the displacement of a bellows is reliably applied (Umemura - ¶0055). In addition a modification to Kumagai providing a valve rod with a rounded end surface would result in a reduction of parts. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a valve rod with a rounded end as taught by Umemura to reduce the number of components required to reliably apply the force generated by the displacement of a bellows of a control valve as taught by Kumagai (Umemura - ¶0055).

14. Claims 2, 4, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumagai et al. US 6,250,6000 in view of Umemura et al US 2002/0098091 as evidenced by Shimizu et. al JP 001153043 (hereto fore cited by reference to the figures and disclosure of Shimizu et al. US 6,350,106), as applied to claim 1 above. In light of a modification to Kumagai as discussed, the limitations of claims 2, 4, and 5 would be taught by virtue of the modified arrangement proposed. With reference to Kumagai the modification of Kumagai in combination with Umemuar would teaches the limitations including: **[claim 2]** a recess contacting end portion (round end of element 65 minus element 77 of Kumagai in contact with the fitting recessed portion (once bellows assembly is reversed the portion of element 68 that fit over element 73) in a

Art Unit: 3746

substantially central position in a bellows chamber 53 expanding/contracting direction of the bellows main body 66 or on a on the fixed side end portion side (now defined by element 71); **[claim 4]** a bottom portion (now defined by element 68a) of the fitting recessed portion (portion of element 68 that fit over element 73) which can come in contact with a stopper face portion (now 71a) at a central portion of a lower patch member (now 71); **[claim 5]** and a fixed side end portion (now end of element 66 in contact with element 71) of the bellows main body (66, 68, 70, 71) is mounted to a lower patch member (now 71) substantially in the same shape as the patch member (now 71), a side face of the lower patch member (vertical wall of element 71) of the lower patch member (now 71) is supported on a support tube portion (now element 69) formed to stand from the bellows case 66, and a stopper face portion (now 71a) at a central portion of the lower patch member (now 71) is supported on a support portion (now element 69) extending from an adjusting screw member 73). This paragraph sets forth the additional limitations that would be taught by a modification to Kumagai as discussed above.

### ***Response to Arguments***

15. Applicant's arguments with respect to claims 1, 2, 4, and 5 have been considered but are moot in view of the new ground(s) of rejection.

16. The applicant's request for rejoinder of claims 3 and 6 is noted by the examiner. These claims cannot be rejoined at this time in view of the rejection of claim 1.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEONARD J. WEINSTEIN whose telephone number is (571)272-9961. The examiner can normally be reached on Monday - Thursday 7:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/  
Supervisory Patent Examiner, Art  
Unit 3746

/Leonard J Weinstein/  
Examiner, Art Unit 3746